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Bear Trees

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**An Eastern Oregon
Landscape Legacy**

Prepared by USDA Forest Service
Pacific Northwest Research Station

The Life Cycle of a Bear Tree

Bear Trees Provide Important Habitat for Many Kinds of Animals



Young black bears are the primary bear-users of large hollow trees as dens. Older females may use them as birthing dens.

In the Blue Mountains of northeastern Oregon a bear tree begins life as a grand fir or larch seedling.



Many human generations will pass before the seedling matures into a tree large enough to become a real bear tree.

Young bears and mothers with cubs may use large trees without hollow centers as "security trees," which provide hiding places whenever they feel threatened.

Potential "Bear Trees" are large, averaging 45 inches in diameter and 65 feet in height. They range from 150 to 500 years in age.

Large, old trees are susceptible to wounding from natural events, such as those that occur during wind and lightning storms.

Heart-rot fungi thrive in the ample supplies of heartwood found in large, old trees.

A wounded tree is vulnerable to colonization by the airborne spores of heart-rot fungi.



Bracket fungi, or shelf fungi, as pictured here, are the fruiting bodies of a fungus. They may indicate the presence of heart-rot in an otherwise healthy looking tree.

Gradually, the log decays into earth, providing the rich fertile soil needed for the start of a new tree seedling, and possibly beginnings of another bear tree.

Small mammals, salamanders, and insects seek shelter in hollow logs.

Bears seek shelter and den in hollow logs.

After many years on old standing tree (or snag) will fall. Here begins its new life providing habitat in the form of a hollow log. Heart-rot in living trees is the only source of hollow logs.

Voles, mice, chipmunks and salamanders may make their homes in hollow trees and logs--logs that come from fallen heart-rot trees.

Vaux's swifts build their tiny stick nests inside hollow trees. They also use large hollow trees for roosting.

A tree's boyonnet may branch out to form an umbrellalike structure over the opening of its hollow interior--providing the elements of an ideal bear home!

The upper limbs of a broken tree may, over time, assume an upright position to form a new top called a boyonnet.

After many decades the interior of a tree colonized by heart-rot will have decayed away, leaving a hollow center.

A tree colonized by heart-rot fungi, over time, becomes structurally weak. Often the top of a weak tree will break off.

Pileated woodpeckers excavate entrances into hollow trees and use them for roosting at night and during wet, cold weather.

Bats use bear trees in summer as nursery roosts. These large trees provide many roosting choices that smaller trees may lack, such as cavities, cracks, or loose bark.

American martens use large hollow snags, logs, and living trees as rest sites throughout the year. Martens often enter a tree through holes created by woodpeckers or through a hollow entrance near the top where a tree has broken off.



United States
Department of Agriculture
Forest Service



Oregon
Department of
Fish and Wildlife



Blue Mountains
Natural Resources
Institute

A Safe Haven for Bears and Others

A Bear's Story . . .

Deep inside the large hollow center of a giant, old fir tree, a young mother black bear and her cubs are dry and warm. Outside, a wet April snow is falling--winter's last display. The signs of early spring are everywhere. The bears instinctively know it's time to end their long hibernation.

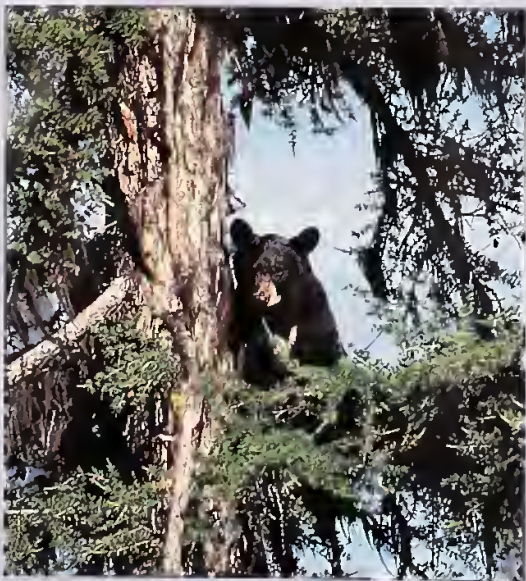
Gently, the mother coaxes her cubs to follow her out of the hollow tree. Pulling themselves up to the den entrance, they push their noses through the needles of an overhanging branch and sniff the enticing aromas. Cautiously, they grip the rough bark of the old tree and begin the long climb to the ground, eager to explore their forest surroundings and begin their search for food.



Photo by D. Carroll

A Home For Bears

Large-diameter trees are important habitat for black bears. Hollow trees with large entrance holes may be used by bears for winter dens. Even without hollow centers, large trees serve an important function as "security trees." Security trees provide a safe place for bears whenever they sense a nearby threat. Young bears and female bears with cubs are particularly aware of favorite security trees within their territory and like to stay within easy access of them. These security trees can often be recognized by the presence of claw marks on the their trunks.



Big Trees--Dead or Alive?

"Bear trees" (trees used by bears for security and dens) can be dead or alive. In the Blue Mountains of northeast Oregon most of these trees are grand fir, although some are western larch. They average 65 feet in height and 45 inches in diameter (some may reach heights of over 100 feet and diameters of over 5 feet).

Rotten at the Core

Bear trees used for denning are usually live trees that have been colonized by fungi that causes heart-rot. Heart-rot allows the tree to live despite having a hollow trunk as a result of decay. The presence of certain canks, or fungal fruiting bodies, suggest that a tree has heart-rot. These canks produce airborne spores that may cause heart-rot in other old trees that have been wounded. Undamaged trees are resistant to the spores.

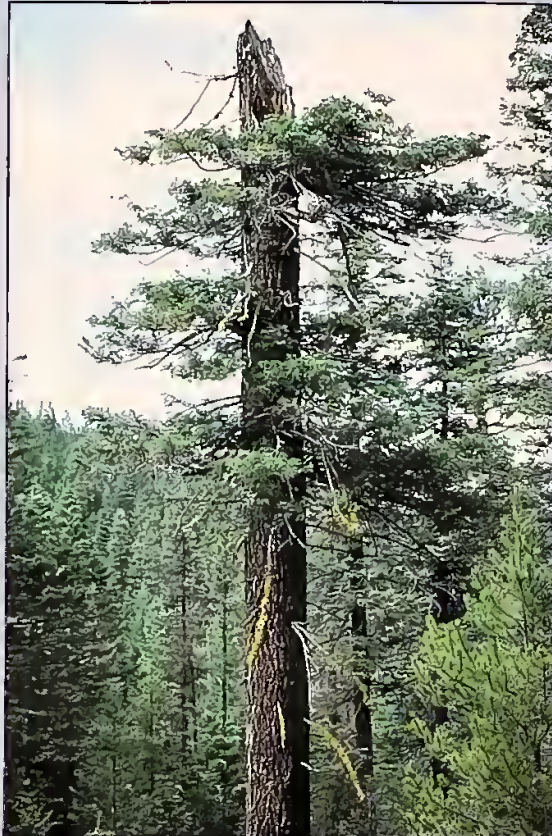


Photo by Craig Schmitt

A Snug Shelter

Nearly half of the 99 bear dens studied in the Blue Mountains have been inside trees. These den trees exist as live trees, snags, and logs. Many of the dens in live trees and snags with broken tops have entrances in the top center of the tree, like the one in our story. Other den trees may have an entrance near the top but in the side, or at the base. Bears may have to climb 44 feet or higher to reach a top entrance, and down into the tree another 25 feet to reach the den floor.



Photo of den by M. G. G. G.

Management and Protection

The value of bear trees (dead and living, very large-diameter trees) to wildlife is high. Their value as lumber, pulp, or firewood is often relatively low. Forest managers need to plan timber sales that will include the retention of existing bear trees. Also, to assure the existence of future bear trees, certain large-diameter trees need to be selected and retained over time.

Bear trees are easiest to recognize by (1) their size, and (2) the presence of claw marks on the trunk. Top-entry den trees sometimes can be recognized by the presence of a "bayonet." A bayonet results when a tree top weakened from heart-rot breaks off, and the upper limbs assume an upright position to form a new top. The branches and needles of the new top may form an umbrella over the entrance of the hollow trunk.



Photo by J. Akenson



Tree climber Tim Brown



This brochure is based on information collected in the Blue Mountains of northeast Oregon by Oregon Department of Fish and Wildlife scientists. For more information concerning black bear habitat contact:



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